



# Assessing the Broccoli Competencies: Good for You and Your Learner



# Objectives

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- An interprofessional story...
- Why these competencies?
- A walk through the broccoli field: a brief tour of assessment in each competency
- Available resources

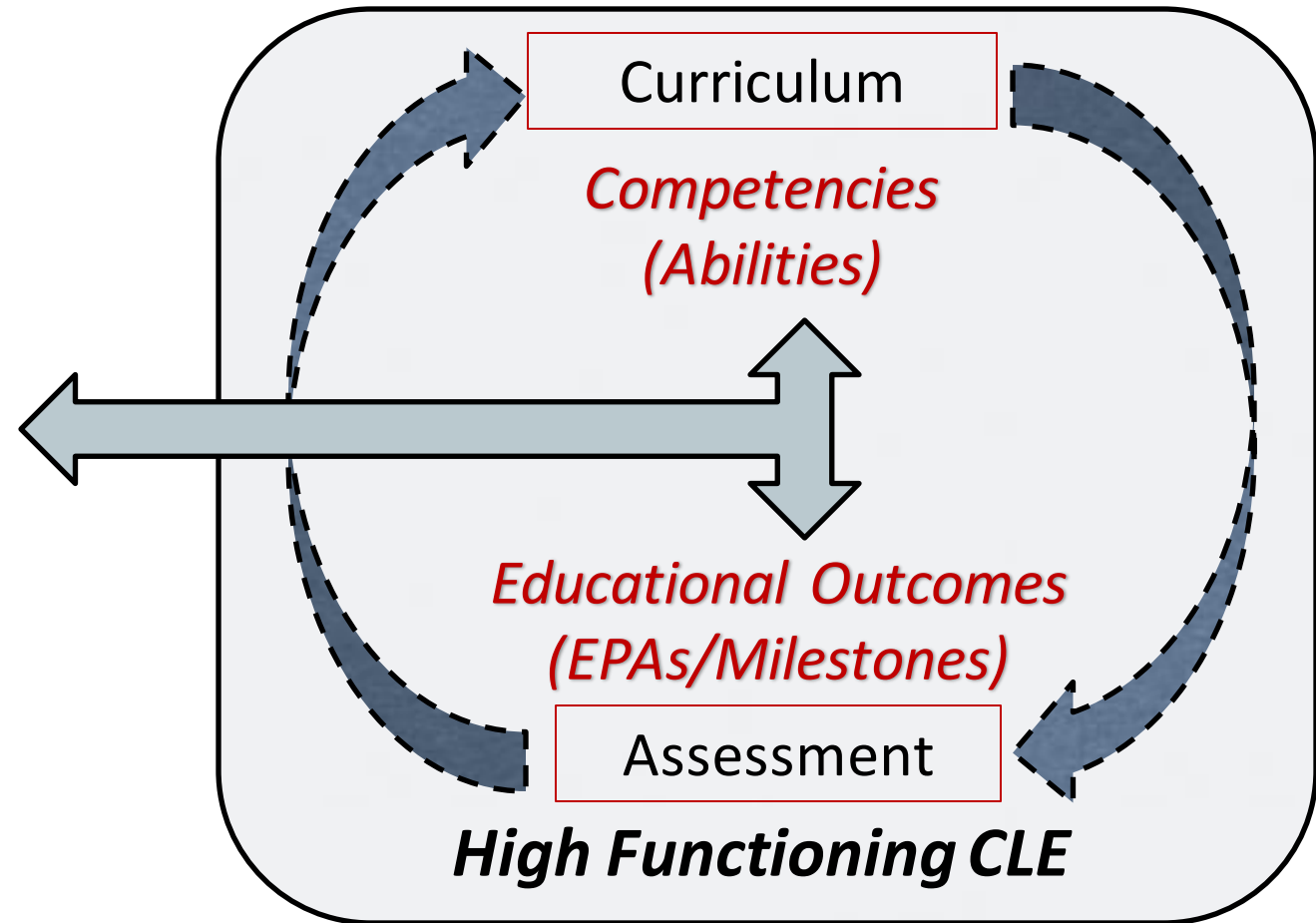




**Why?**

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# The Ultimate Goal of Medical Education





## **MIRROR, MIRROR 2021**

Reflecting Poorly: Health Care in the U.S.  
Compared to Other High-Income Countries



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# Health Care System Performance Rankings: 2021

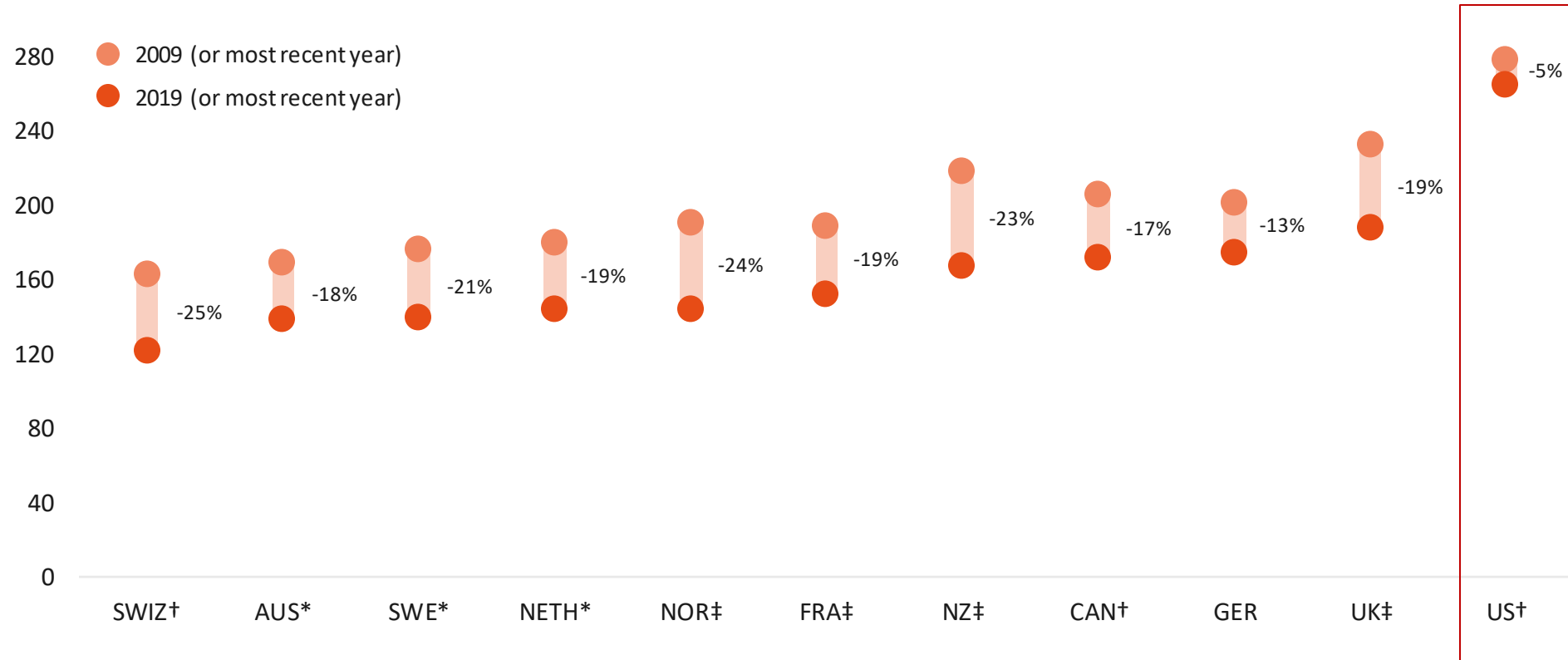
	AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
<b>OVERALL RANKING</b>	<b>3</b>	<b>10</b>	<b>8</b>	<b>5</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>7</b>	<b>9</b>	<b>4</b>	<b>11</b>
Access to Care	8	9	7	3	1	5	2	6	10	4	11
Care Process	6	4	10	9	3	1	8	11	7	5	2
Administrative Efficiency	2	7	6	9	8	3	1	5	10	4	11
Equity	1	10	7	2	5	9	8	6	3	4	11
Health Care Outcomes	1	10	6	7	4	8	2	5	3	9	11



Commonwealth Fund. Mirror, Mirror. 2021

# Avoidable Deaths and Ten-Year Reduction in Avoidable Mortality Across Countries

Deaths per 100,000 population



Notes: Health status: avoidable mortality. Data years are: 2009 and 2019 (Germany); \* 2008 and 2018 (Australia, the Netherlands, Sweden); † 2007 and 2017 (Canada, Switzerland, US); and ‡ 2006 and 2016 (France, New Zealand, Norway, UK).

Data: Commonwealth Fund analysis of data from OECD Health Statistics, July 2021.



2022

# National Healthcare Quality and Disparities Report

Executive  
Summary





Appendix Table 4.34. Measure: Severe maternal morbidity per 1,000 delivery discharges, women ages 12-55

Source: Healthcare Cost and Utilization Project

Benchmark was not available.

Disparity Year: 2019

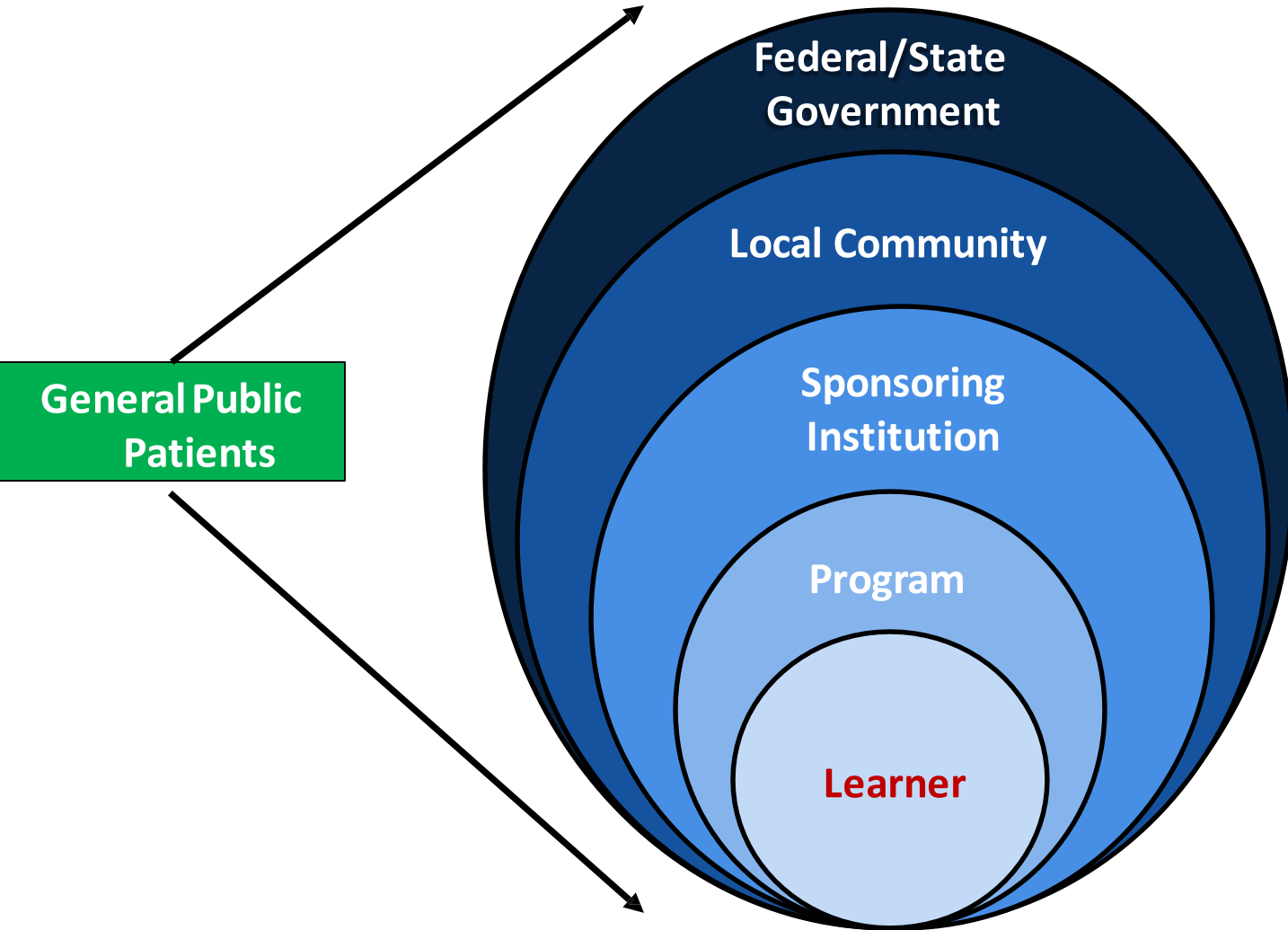
Note: Lower estimates are better for this measure. The unit of measurement is rate per 1,000.

Legend:

Trend: ■ Improving ■ Not changing ■ Worsening      Disparities: ■ Better ■ Same ■ Worse

Population Category	Subgroup	Baseline Year	Baseline Rate	Current Year	Current Rate	Average Annual Change %	Change Over Time	Years to Benchmark	Reference Group	Rate for Reference Group	Rate for Comparison Group	Relative Difference	Disparities
Total	Total	2016	7.2	2019	8.1	3.8	Worsening	=====	=====	=====	=====	=====	=====
Ethnicity	Non-Hispanic, White	2016	6.1	2019	6.6	2.8	No change	=====	=====	=====	=====	=====	=====
	Hispanic, all races	2016	7.1	2019	8.2	4.8	Worsening	=====	Non-Hispanic, White	6.6	8.2	24.3	Worse
	Non-Hispanic, API	2016	7.5	2019	8.7	6.1	No change	=====			8.7	32.1	Worse
	Non-Hispanic, Black	2016	11.3	2019	12.3	2.9	Worsening	=====			12.3	86.6	Worse
Income	400% of PG or more	2016	6.3	2019	7.5	5.5	Worsening	=====	=====	=====	=====	=====	=====
	Less than 100% of PG	2016	8.2	2019	8.9	3.1	Worsening	=====	400% of PG or more	7.5	8.9	19.6	Worse
	100-199% of PG	2016	7.3	2019	7.9	2.7	No change	=====			7.9	6.4	Same
	200-399% of PG	2016	6.7	2019	7.7	4.7	Worsening	=====			7.7	3.0	Same
Health insurance	Any private	2016	6.4	2019	7.1	4.1	Worsening	=====	=====	=====	=====	=====	=====
	Medicaid only	2016	8.1	2019	9.0	3.7	Worsening	=====	Any private	7.1	9.0	25.8	Worse
	Other insurance	2016	6.5	2019	7.9	6.6	Worsening	=====			7.9	10.8	Worse
	Uninsured	2016	6.4	2019	7.3	4.6	Worsening	=====			7.3	2.7	Same
Metropolitan status	Large fringe metro	2016	7.0	2019	7.9	4.2	Worsening	=====	=====	=====	=====	=====	=====
	Large central metro	2016	7.9	2019	9.2	5.0	Worsening	=====	Large fringe metro	7.9	9.2	16.2	Worse
	Medium metro	2016	7.0	2019	7.7	3.2	Worsening	=====			7.7	-2.5	Same
	Small metro	2016	6.5	2019	6.5	1.0	No change	=====			6.5	-18.0	Better
	Micropolitan	2016	6.6	2019	6.9	1.7	No change	=====			6.9	-12.3	Better
	Noncore	2016	6.7	2019	7.1	1.9	No change	=====			7.1	-9.9	Better
Age	18-24	2016	6.2	2019	6.6	2.6	No change	=====	=====	=====	=====	=====	=====
	12-17	2016	7.5	2019	8.3	3.5	No change	=====	18-24	6.6	8.3	25.6	Worse
	25-34	2016	6.7	2019	7.4	3.3	Worsening	=====			7.4	10.7	Worse
	35-55	2016	10.6	2019	11.9	3.9	Worsening	=====			11.9	79.2	Worse

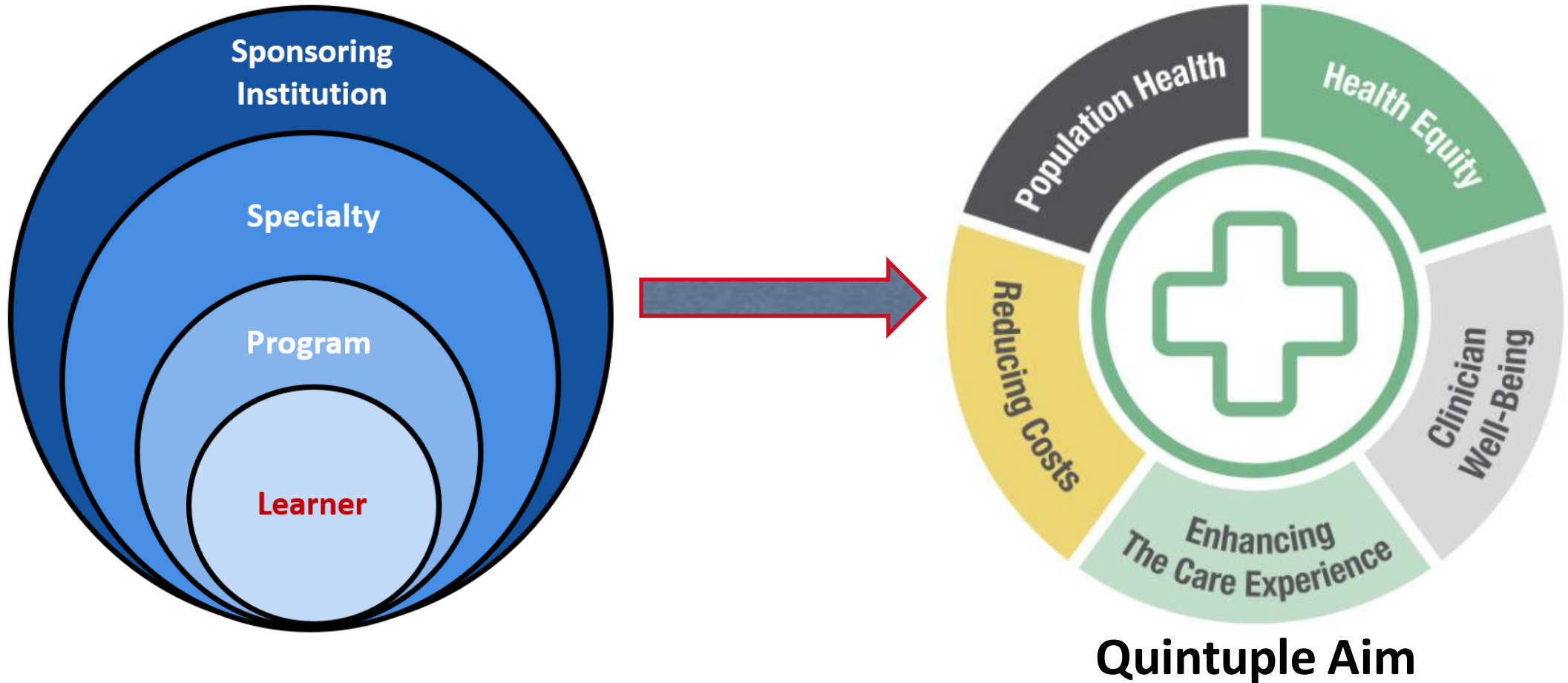
# Nested Relationships



- Learners are *nested* within programs that are *nested* within institutions, all embedded within a community
- These interdependent relationships can affect both educational and clinical outcomes



# Connecting Medical Education to Outcomes





# **A Few Basic Assessment Principles**

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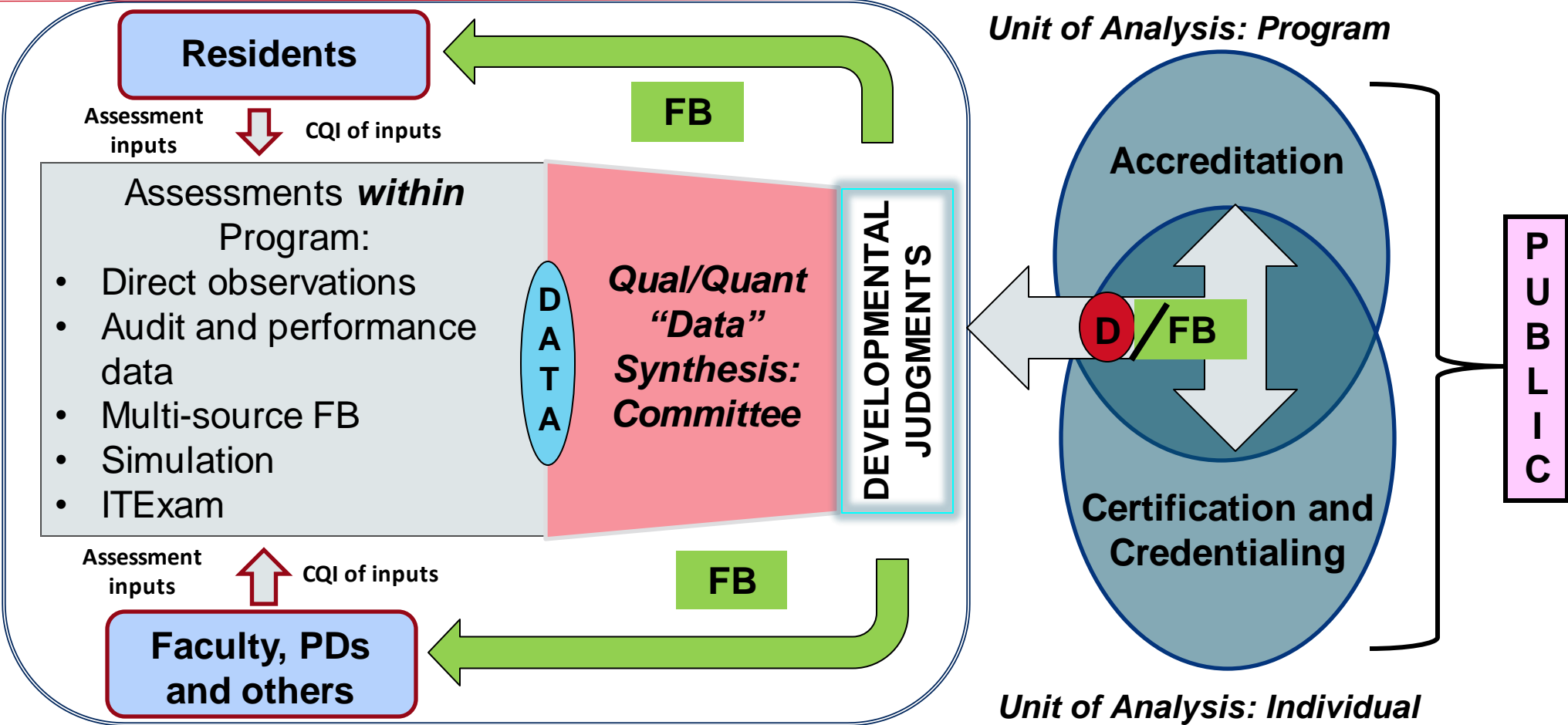
# Core Components Framework

Outcome Competencies	Sequenced Progression	Tailored Learning Experiences	Competency-focused Instruction	Programmatic Assessment (using Systems Thinking)
Competencies required for practice are <u>clearly articulated</u> .	Competencies and their developmental markers are <u>sequenced progressively</u> .	Learning experiences <u>facilitate</u> ...	Teaching practices <u>promote</u> ...	Assessment practices <u>support &amp; document</u> ...
....the developmental acquisition of competencies.				



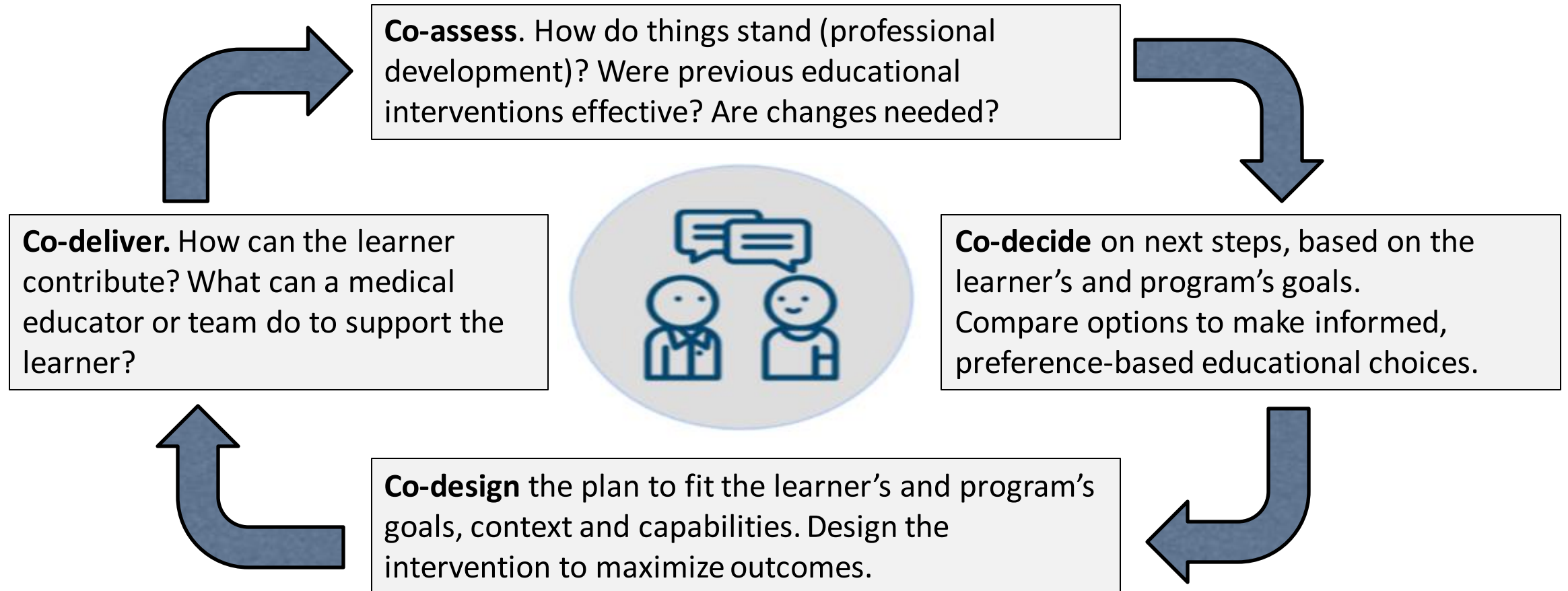
Van Melle E, et. al. A Core Components Framework for Evaluating Implementation of Competency-Based Medical Education Programs. Acad Med. 2019 Jul;94(7):1002-1009.

# The GME Assessment “System”



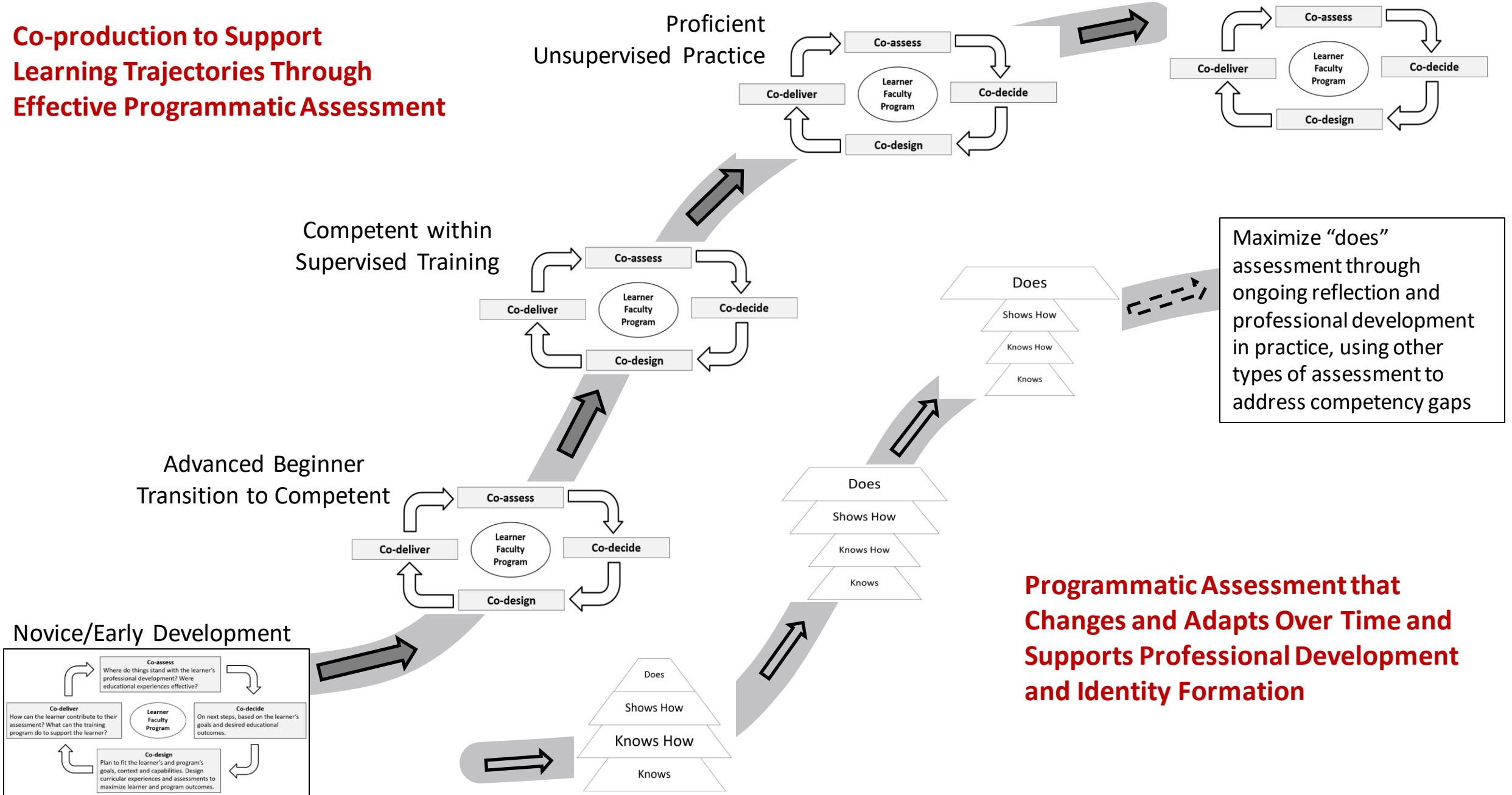


# Coproduction Cycle: MedEd

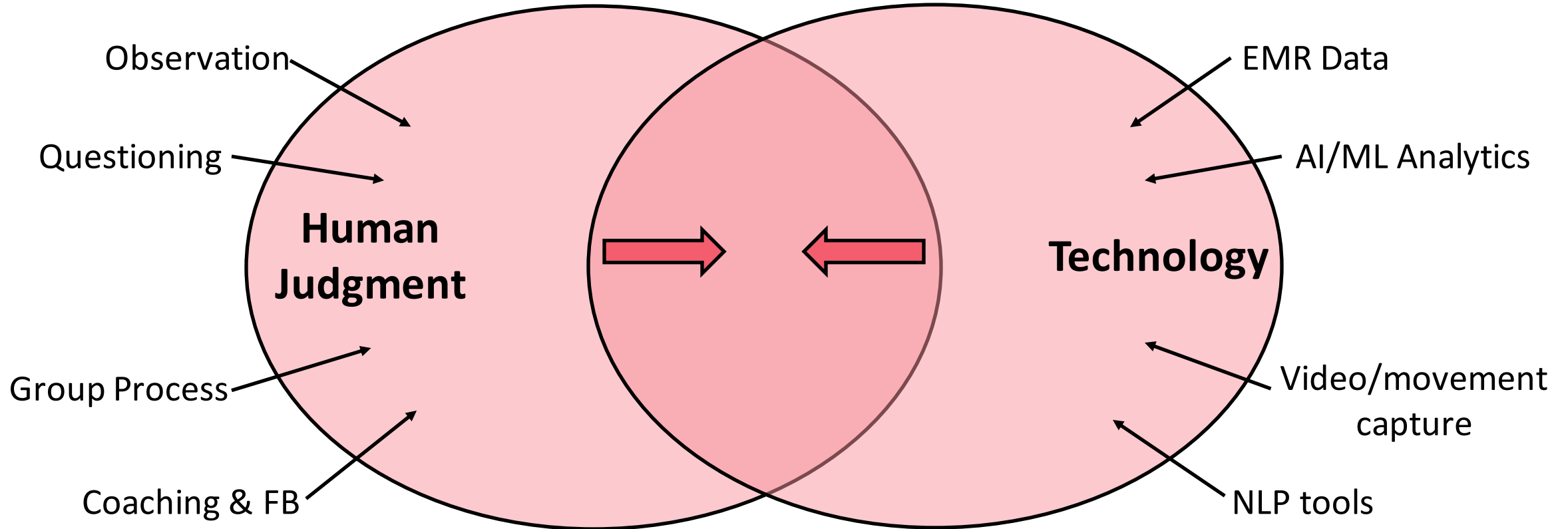


# Co-production to Support Learning Trajectories Through Effective Programmatic Assessment

## Journey to Expertise and Mastery



# Evolution of Assessment





# **A Walk Through the Broccoli Fields...**

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# PBL and I: Harmonized Milestones

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PBLI1: Evidence Based and Informed Practice

PBLI2: Reflective Practice and Commitment to Personal Growth

Includes seeking and using performance data

<https://www.acgme.org/Portals/o/PDFs/Milestones/HarmonizingPBLI.pdf?ver=2018-12-06-140314-100>



# Example: PBLI1 - Evidence-based Practice

Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access, categorize, and analyze clinical evidence	Articulates clinical questions and elicits patient preferences and values in order to guide evidence-based care	Locates and applies the best available evidence, integrated with patient preference, to the care of complex patients	Critically appraises and applies evidence even in the face of uncertainty and conflicting evidence to guide care, tailored to the individual patient	Coaches others to critically appraise and apply evidence for complex patients; and/or collaboratively develops evidence-based decision-making tools
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b> <div style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></div>				





# Clinical Questions at Point of Care

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- Systematic Review (11 articles):
- Mean frequency of questions = 0.57 per patient visit
  - GIM Physician: Roughly 90 visits/week
  - Assuming conservative estimate of 46 weeks of work/year
    - ***# of questions ≈ 2,228 per year or ≈ 22,000+ over 10 years***
- Physicians pursued 51% (range 36-66%) of questions
  - Found answers for 78% (range 67-88%)



# Educational EBP Prescription

- It states the question
- It specifies who is responsible for answering it
- It reminds everyone of the deadline
- It reminds everyone of the steps of searching, critically appraising and relating the answer back to the patient

<http://www.cebm.utoronto.ca/practise/formulate/eduprescript.htm>



**R<sub>x</sub>** **Educational Prescription**

Patient's Name:  Learner:

**3-part Clinical Question**

Target Disorder:

Intervention (+/- comparison):

Outcome:

Date and place to be filled:

Presentation will cover:

1. search strategy;
2. search results;
3. the validity of this evidence;
4. the importance of this valid evidence;
5. can this valid, important evidence be applied to your patient;
6. your evaluation of this process.

# AI: It is Already Here...

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Are we preparing our learners to use it well?

**Artificial Intelligence Chatbot Performance in Triage of Ophthalmic Conditions**

## Conclusions and Relevance

ChatGPT using the GPT-4 model offered *high diagnostic and triage accuracy* that was comparable to the physician respondents, with no grossly inaccurate statements. Bing Chat had lower accuracy, some instances of grossly inaccurate statements, and a tendency to overestimate triage urgency.



Riley J. Lyons MD\*1, Sruthi R. Arepalli MD\*1, Ollya Fromal MD1, Jinho D. Choi PhD2,  
Nieraj Jain medRxiv preprint.

# AI-Related Clinical Competencies for Health Care Professionals

Basic Knowledge of AI	Social and Ethical Implications of AI	Workflow Analysis for AI-Based Tools	AI-Enhanced Clinical Encounters	Evidence-Based Evaluation of AI-Based Tools
Practice-Based Learning and Improvement Regarding AI-Based Tools				

# Reflective Practice - Definition

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*Reflective Practice* is the process of critically considering one's own professional practice during or after events in order to review one's values and to understand the emotions and reasons behind one's actions and decisions and the effect of those actions and decisions on others

Finlay



*Slide courtesy of Gail Armstrong*

# Schön: Reflection on Action

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- Thinking about what you did **after the experience**
- Clarifying the meaning of experiences
- Retrospective contemplation
- Redesign what you do in the future
- Experience informs tacit knowledge
- Continuous professional development



*Slide courtesy of Tom Viggiano*



# Informed Self-Assessment

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- Literature clear – cannot perform effective or accurate self-assessment alone or in isolation
- Eva and Regher
  - “Self-directed assessment seeking”
  - Implications:
    - Need to teach as a habit and skill during residency
    - A dynamic and complex process
    - Sargeant: Reconceptualize SA as *informed* self-assessment



# Individualized Learning Plans (ILPs)

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- Individualized learning plans are essential for professional growth and development
- ILPs should be completed after each CCC Milestone review period.
- ILPS are a *common program requirement*



# SBP Harmonized Milestones

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## SBP1: Patient Safety and Quality Improvement

Focuses on role in helping to improve care and patient safety

## SBP2: System Navigation for Patient Centered Care

Care coordination; transitions; community & population health

## SBP3: Physician Role in Healthcare Systems

Systems thinking; advocacy; technology & administrative roles

<https://www.acgme.org/Portals/o/PDFs/Milestones/HarmonizingSBP.pdf?ver=2018-12-06-140150-973>



# Important SBP Dictum

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- You cannot effectively learn and assess about these competencies (and quality and patient safety) without training in systems that involve trainees in providing high quality care and patient safety.
- This is a fundamental premise of the CLER program



# Training Environment and Future Practice

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*All* these studies found an association between hospital level quality, safety or costs where the physician trained and their future practice after graduation:

- Asch (2009)
  - Obstetrical complications
- Chen (2014); Phillips (2017)
  - Costs of care in IM and FM practice
- Sirovich (2014)
  - Appropriate conservative management (on exam)
- Bansal (2015)
  - Surgical complications



# Residents and QI skills

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- Understand key definitions and NAM aims
- Understand and embrace quintuple aim
- How to measure quality
- Understand micro-systems
- Apply and use QI process tools:
  - PDSA (or DMAIC)
  - Flowcharts
- Understand and apply basic patient safety principles and interventions
  - Sign-out and handoffs
  - Root cause analyses



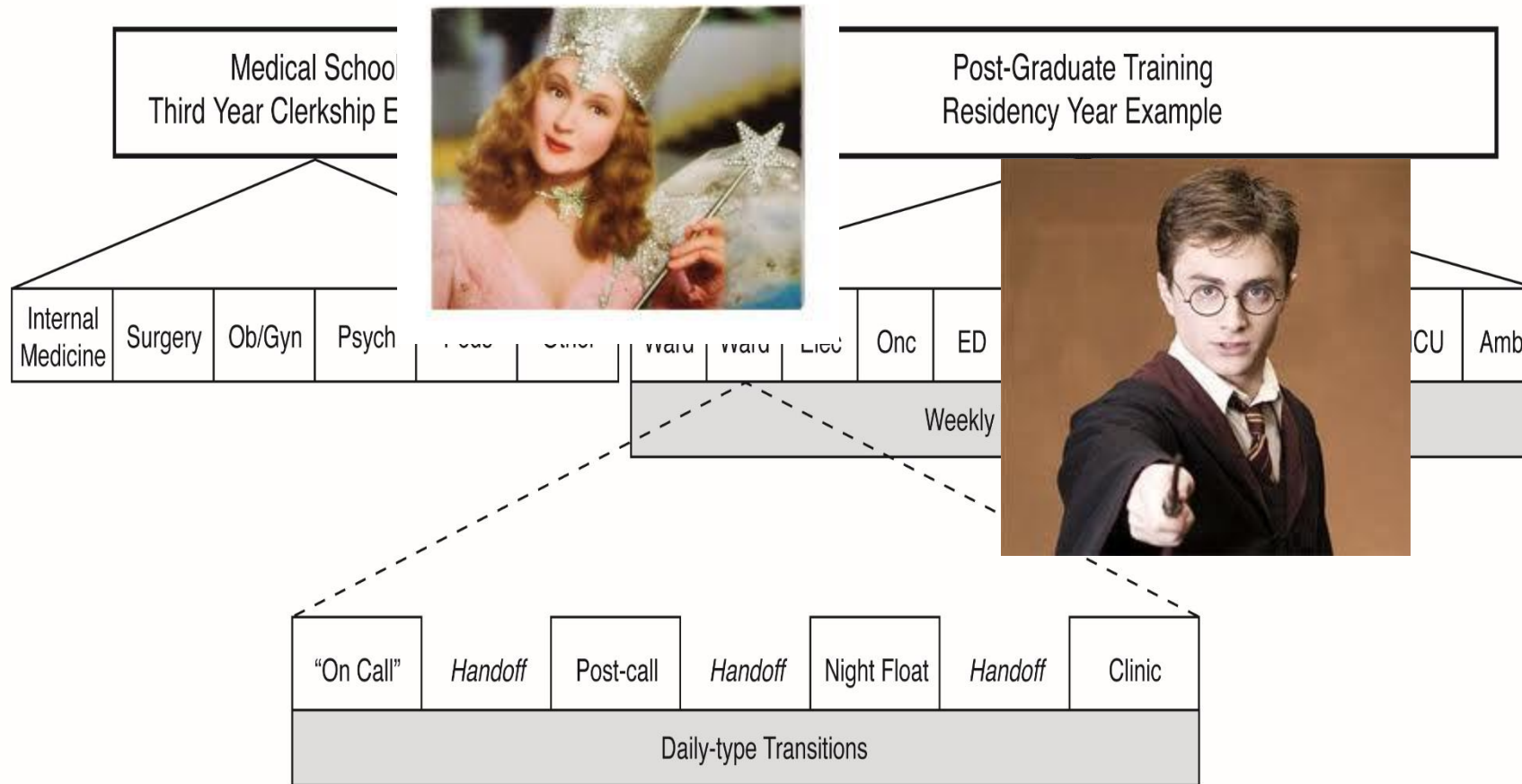
# Daily and Rotational Transitions

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- Poorly managed transitions (daily and rotational) have been shown to contribute to patient harm
- Multiple evidence-based approaches for managing transitions (handoffs; sign out; etc.)
  - IPASS
  - SIGNOUT
  - SBAR



# Transitions Built into Educational Design



<sup>1</sup>Holmboe E, Ginsburg S, Bernabeo E. The rotational approach to medical education: time to confront our assumptions. Med Educ. 2011; 45(1):69-80.



# Association Between End-of-Rotation Resident Transition in Care and Mortality Among Hospitalized Patients

- Adjusted hospital mortality was significantly greater in transition vs control patients for the intern-only and intern + resident groups
- Adjusted *30-day and 90-day mortality rates were greater in all transition vs control comparisons.*

Adjusted Mortality Rate	Intern-Only Group		Resident-Only Group		Intern + Resident Group	
	Transition	Control	Transition	Control	Transition	Control
In-hospital, %	3.5	2.0	3.3	2.0	4.0	2.1
OR (95% CI)	1.12 (1.03-1.21)		1.07 (0.99-1.16)		1.18 (1.06-1.33)	
At 30 days, %	14.5	8.8	13.8	8.9	15.5	9.1
OR (95% CI)	1.17 (1.13-1.22)		1.11 (1.04-1.18)		1.21 (1.12-1.31)	
At 90 days, %	21.5	13.5	20.9	13.6	22.8	14.0
OR (95% CI)	1.14 (1.10-1.19)		1.10 (1.05-1.16)		1.17 (1.11-1.23)	



Denson JL. Association between end-of-rotation resident transition in care and mortality among hospitalized patients. *JAMA*. 2016; 316(21):2204-2213.

# Care Transitions: Patients and Discharge

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## Care Transition Measure (CTM)

- Developed and validated by Eric Coleman and colleagues at University of Colorado
- Two versions: CTM-3 and CTM-15
  - 4-point scale (strongly agree – strongly disagree)
- Endorsed by the National Quality Forum (NQF)
- Communication at a critical care transition
  - ***A deeply interprofessional process!***



# Learning QI and PS: Exemplary Care and Learning Sites

## ECLS Model Characteristics:

- Patients and families informing process changes
- Trainees engaging both in care and the improvement of care
- Leaders knowing, valuing, and practicing improvement
- Data transforming into useful information
- Health professionals competently engaging both in care improvement and teaching about care improvement



Headrick L, et.al. Acad Med. 2016.

# Professionalism

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PROF1: Professional Behavior and Ethical Principles

PROF2: Accountability/Conscientiousness

PROF3: Well-being

<https://www.acgme.org/Portals/o/PDFs/Milestones/HarmonizingPROF.pdf?ver=2018-12-06-140544-443>



# Interpersonal Communication Skills

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ICS1: Patient and Family-Centered Communication

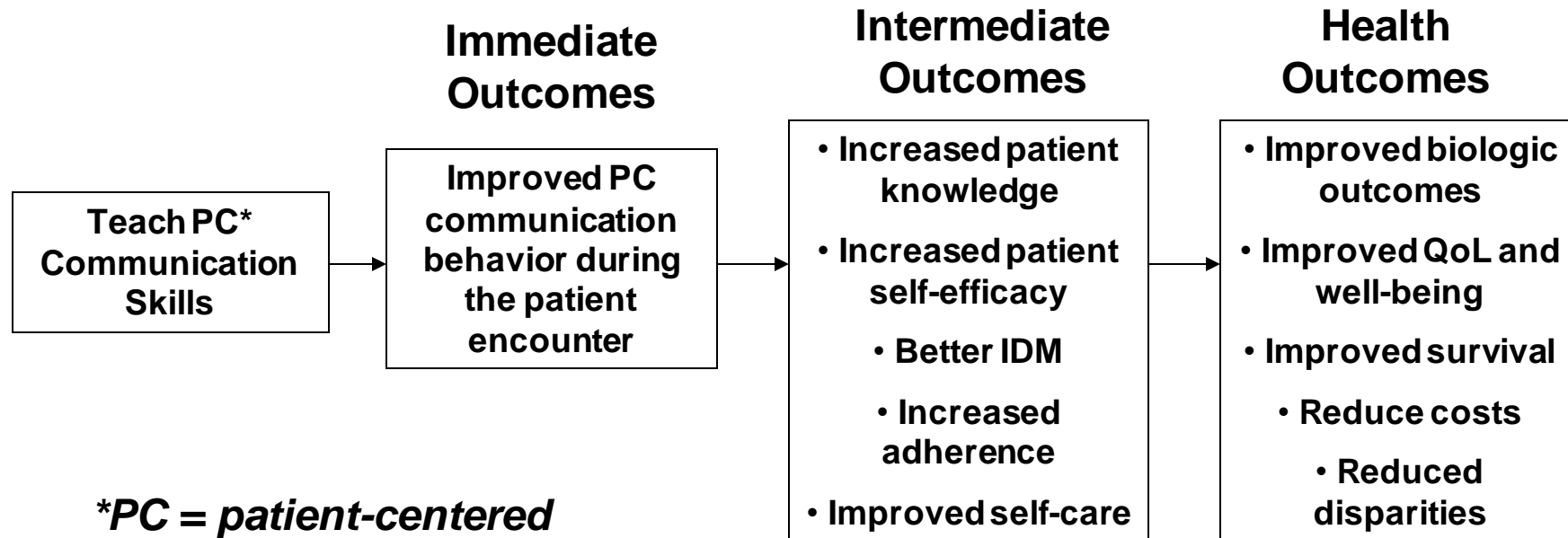
ICS2: Interprofessional and Team Communication

ICS3: Communication within Healthcare Systems

<https://www.acgme.org/Portals/0/PDFs/Milestones/HarmonizingICS.pdf?ver=2018-12-06-140701-773>



# Link Between Communication and Outcomes



*Levinson W, Lesser CS, Epstein RM. Developing Physician Communication Skills for Patient-centered care. Health Affairs. 2010; 29: 1310-18.*





# Direct Observation: Still Essential in Assessment



# Goal of Patient Care and Training



Safe, effective  
patient-centered care

Appropriate level of  
**supervision**\*\*

\*\*a function of attending competence in context

Trainee performance\*

\* a function of level of competence in context

Kogan JR et al. *Acad Med*; 2014;89:721-7





# Multi-source Feedback (MSF)

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Also referred to as 360° evaluation

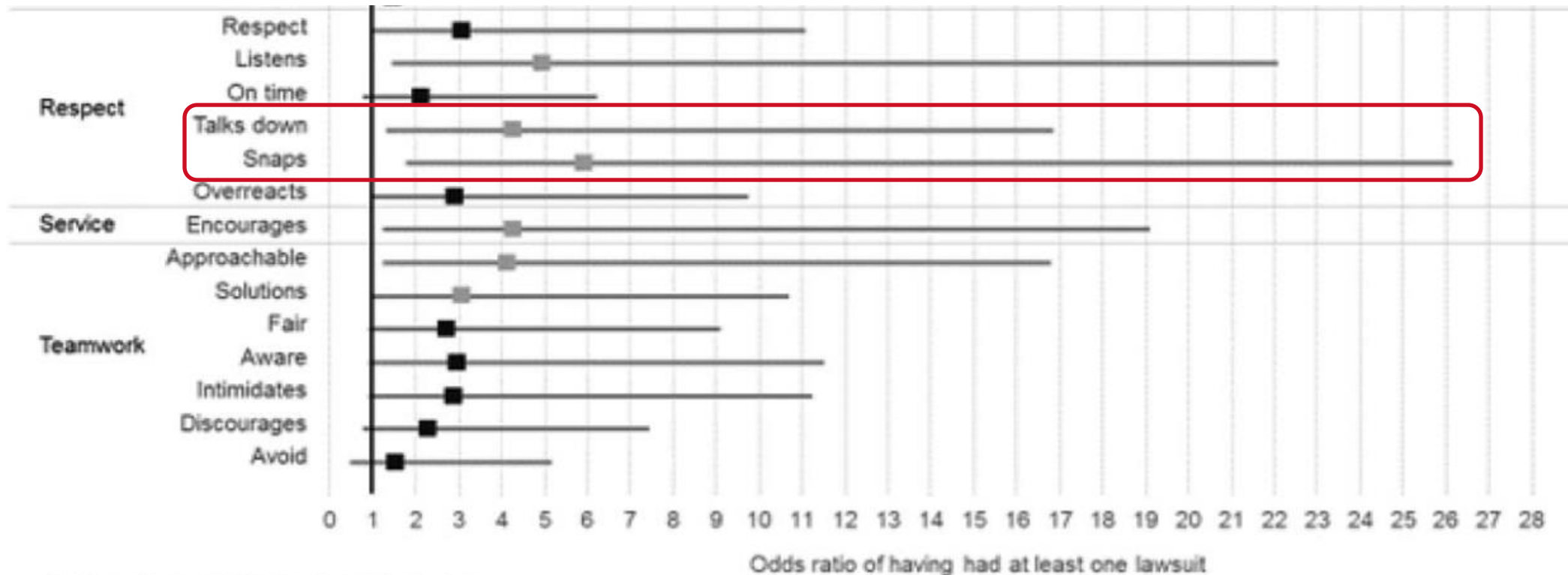
- Definition

- Assessment completed by multiple individuals, usually from different perspectives based upon *observations* in different contexts
- Includes raters, “processes and instruments for information gathering, appraisal and feedback...”



# MSF and Malpractice

Harvard associative study of 264 surgeons and malpractice claims



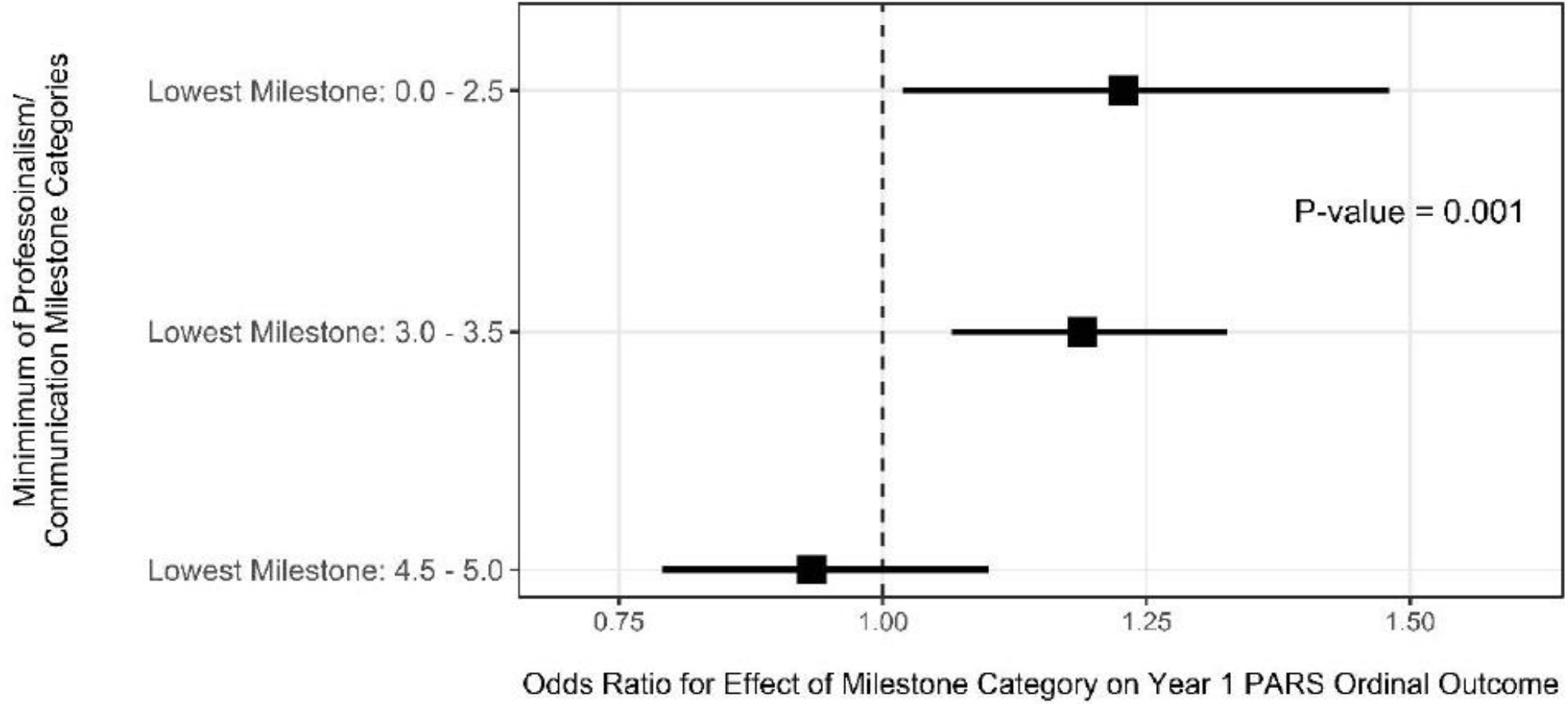
Minimum 10 raters, 95% CIs adjusted for clustering



Lagoo J, et. al. Multisource Evaluation of Surgeon Behavior is Associated with Malpractice Claims. Ann Surg, 2018; online first. DOI: 10.1097/SLA.0000000000002742

# Adjusted Effect of Minimum Professionalism/Communication Milestone Category on PARS Year 1 Index Score Category

Reference:  
Milestone Rating = 4.0



Han M, Hamstra SJ, Hogan SO, et. al. Trainee Physician Milestone Ratings and Patient Complaints in Early Post-Training Practice. JAMA NetW Open. 2023.

# MSF: Nurses

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- Nurses and other health professionals ratings often do not correlate with faculty ratings and other measures
  - Ogunyemi, et. al. (2009)
    - Residents assessed on communication with patients, interactions with peers, and professionalism
    - Weak correlations occurred between nursing and faculty evaluations ( $r = 0.065-0.119$ ,  $P < .001$ ).
    - Weak negative correlations between nursing evaluations and standard medical examination scores ( $r = -0.08$  to  $-0.10$ ,  $P < .001$ ).



# MSF: Patients

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- Surveys should target patient *experience*, not just satisfaction
- Patient experience does correlate with quality of care
- Patient experience surveys best used as a formative assessment tool in residency and fellowship
- Multiple options:
  - AHRQ family of CAHPS surveys
  - Pres-Ganey
  - Others



# Conclusions

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- These four competencies are essential to both improved educational *and* healthcare and health outcomes and...
- Broccoli is good for you and your patients



# Resources Available

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[Assessment Guidebook](#) – 1st edition

[Clinical Competency Committee Guidebook](#) – 3rd edition

[Implementation Guidebook](#) – 1st edition

[Milestones Guidebook](#) – 2nd edition

[Milestones Guidebook for Residents and Fellows](#) – 2nd edition

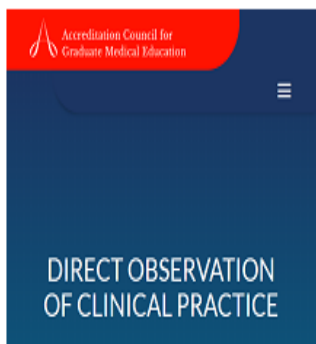
[Milestones National Report with PPVs](#) – 2019 through 2022

Faculty Development in Assessment

Open Access Assessment Tools

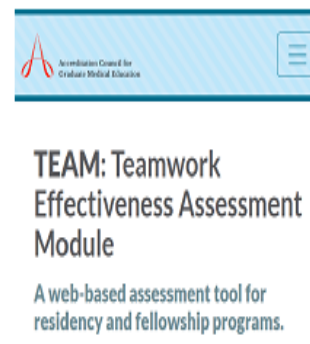


# Open Access Assessment Tools



The **Direct Observation of Clinical Care (DOCC) app** is a tool for faculty members and other evaluators to do on-the-spot or scheduled direct observation assessments of residents and fellows performing five clinical activities in which they are expected to achieve competence: performing a history and physical exam; effective clinical reasoning; informed decision making; breaking bad news; and safe hand-offs. The DOCC app is designed as an open access tool that Sponsoring Institutions and programs can implement locally through an integration with a residency management system or other database.

Download DOCC from the [App Store](#) for iPhone and [GooglePlay](#) for Android. Sponsoring Institutions and programs interested in setting up the DOCC app locally are advised to work with their IT teams to download the DOCC package, which is available in the app and includes the system specifications needed to support the app, as well as instructions for implementation. For details on integrating DOCC into a residency management system and/or to obtain license codes, email [de@acgme.org](mailto:de@acgme.org).



The **Teamwork Effectiveness Assessment Module (TEAM)** is a vehicle for collecting multi-source feedback on residents' and fellows' professionalism, interpersonal and communication skills, and competence in interprofessional teamwork and aspects of systems-based practice. Originally developed by the American Board of Internal Medicine, the ACGME has adapted its use for individual residents/fellows to gather and interpret feedback from the inter-professional patient care teams with which they work.

Data entered into TEAM is kept secure and confidential, and is accessible only to individual residents, fellows, faculty members, and program users. None of the information entered is used for accreditation purposes.



<https://dl.acgme.org/pages/assessment>



# Questions and Discussion

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